

Restricted Circulation

This paper is not an official document; it is for information only and reference cannot be made to it in any printed publication without the permission of the author.

AGRICULTURAL MEMORANDUM No. 569

Yield of alpha-acid per hectare - L. P. Smith

The simplest meteorological parameters for alpha-acid yield appear to be the same as those for the percentage, namely

Temperature and percentage of possible sunshine over the period between date of hop emergence and date of picking.

Y = kilograms per hectare

T = mean temperature in degrees Centigrade

P = percentage sunshine

Temperatures above and below optimum (c.16.5°C) are treated separately.

(a)	Temperatures above optimum (12 samples)	<u>Multiple regression</u>	<u>Mean error</u>
Fuggle	$Y = 415 - 4.5P - 6.6T$	0.88	16
N. Brewer	$804 - 5P - 23.3T$	0.93	19
Hallertau	$402 - 2P - 13.2T$	0.82	18
Saaz	$443 - 2.7P - 14.2T$	0.80	19
(b)	Temperatures below optimum (7 samples)		
Fuggle	$Y = 74 - 4.6P + 12.2T$	0.87	12
N. Brewer	$23 - 4.9P + 19T$	0.57	33
Hallertau	$376 - 8.6P + 2.3T$	0.97	6
Saaz	$22.7T - 5P - 97$	0.71	20

The unsatisfactory results are those for Northern Brewer and Saaz at temperatures below the optimum, but seven is too small a sample and too much reliance should not be placed on these results.

Above the optimum, there is a degree of consistency in the shape of the formulae, which seem to imply that excess sunshine will cause hop temperatures to rise above the air temperatures and hence still further away from the optimum level.

As no account has been taken of the earlier weather, which must be thought to affect total yield, the formulae cannot be expected to provide full explanations and probably would not apply in other years.

Any comments or suggestions on this paper should be referred to the author.

August 1973

Meteorological Office
Bracknell

F41